TWIN STATE ENVIRONMENTAL CORP.
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Phase (check one)	Type (check one)
☑ Site Investigation	☐ Work Scope
☐ Corrective Action Feasibility Investigation	☑ Technical Report
☐ Corrective Action Plan	☐ PCF Reimbursement Request
☐ Corrective Action Summary Report	☐ General Correspondence
☐ Operations & Monitoring Report	

SITE INVESTIGATION SUMMARY REPORT

September 24, 1996

Marvin's Market
221 Colchester Road
Essex Jct., Vermont

SMS Site #94-1636
UST Facility #7144
TSEC #94-137

Prepared for:
David & Caroline Antone
221 Colchester Road
Essex Junction, Vermont 05452
(802) 878-5892

Written By:

Jon P. Berntsen
Staff Geologist

Reviewed By:

John R. Diego
Vice President

September 24, 1996

Mr. David Antone
221 Colchester Road
Essex Junction, Vermont 05452

RE: Site Investigation
Marvin's Market
TSEC Project # 94-137, SMS Site #94-1636

Dear Mr. Antone:

Enclosed is the Site Investigation Report that was prepared in response to a May 2, 1995 request from the Vermont Agency of Natural Resources (ANR) to complete a site investigation at the above referenced SITE. A workplan was submitted to the ANR in a letter dated May 19, 1995.

Soil and groundwater contamination was observed in the former UST excavation during tank replacement activities in June 1994. Our recent subsurface investigation in July 1996 has also indicated that petroleum contamination, as a result of these former tanks, has impacted soil and groundwater beneath the SITE.

We have recommended that a groundwater monitoring program be conducted on a quarterly basis that includes sampling of the seven on-SITE monitoring wells, as well as the on-SITE drinking water supply well.

Please call to discuss our findings or other matters of concern.

Very truly yours,
TWIN STATE ENVIRONMENTAL CORPORATION

Jon P. Berntsen
Staff Geologist

encl.
cc: Mr. Richard Spiese, State of Vermont, Sites Management Section
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Marvin's Market
Essex Junction, Vermont
September 24, 1996

1.0 INTRODUCTION

This report has been prepared by Twin State Environmental Corporation (TSEC) as contracted by David and Carolyn Antone, to present the findings of environmental conditions encountered during a recent subsurface site investigation at Marvin's Market in Essex Junction, Vermont (SITE) (see SITE Location Map, **Figure 1**).

Three (3) underground storage tanks (USTs) containing gasoline ranging in size from 3,000 gallons to 6,000 gallons, were removed from the SITE on June 6, 1994. Some gasoline contaminated soils were found in the excavation and in the areas adjacent to the tank fill pipes.

The investigation was initiated in response to a May 2, 1995 request by the State of Vermont to investigate the extent of contamination discovered during the June 1994 removal of underground storage tanks (USTs) from the above-mentioned site.

2.0 SCOPE OF SERVICES

The following scope of services were performed by TSEC during this investigation:

- Four (4) Geoprobe™ borings were advanced to investigate soil contamination downgradient from the former USTs. Four (4) 1-inch groundwater monitoring wells were installed in these borings. Recovered soil samples were field screened using a ThermoEnvironmental Instruments Organic Vapor Meter (OVM) equipped with a 10.6 eV photoionization detector (PID).

- Groundwater samples were collected from the three (3) existing and the four (4) newly installed monitor wells, and submitted for analysis at a certified laboratory by USEPA Method 8020.

- Elevations and locations of the monitoring wells were surveyed. The data obtained has been used to incorporate the new wells into the existing site map, and future groundwater contour maps.

- A survey of sensitive receptors was conducted, focusing on surface water, residential basements (if present), and private drinking water wells. One groundwater sample was collected from the on-SITE supply well and submitted for analysis at a certified laboratory by USEPA Method 8020.

- A summary report of the above-mentioned work was prepared.

3.0 SITE LOCATION AND DESCRIPTION

SITE Owner:	David & Carolyn Antone
SITE Address:	221 Colchester Road Essex Junction, Vermont
Zoning:	Commercial
Utilities:	Water - On-SITE Well Sewer - On-SITE Septic Electric - overhead connection
Structures:	One (1) single story convenience store, attached to a single story auto repair shop.

The SITE is located on the east side of Route 2A (Colchester Road) in Essex Junction, Vermont (see SITE Location Map, **Figure 1**). The buildings on-SITE are currently in use as a convenience store and retail gas station, and an automotive repair shop. The current USTs for the station are located along the east side of the paved driveway area, and are covered by a concrete pad.

The site is commercially zoned and is situated in a mixed land use area. The properties adjacent to the site consist of a vacant lot to the north; Colchester Road to the west; the Central Vermont Railroad to the east; and Route 289 to the south.

Existing storage tanks consist of two (2) USTs, located on the southeast portion of the property, approximately 150 feet from the former UST location..

The topography of the site slopes towards the Central Vermont Railroad right-of-way to the east. The nearest surface water receptor, Indian Brook, is located approximately ¼-mile southwest of the SITE, and flows towards the northwest.

4.0 UST CLOSURES ON SITE

Three (3) USTs were removed from the SITE on June 6, 1994. These include one (1) 3,000-gallon UST; one (1) 4,000-gallon UST; and one (1) 6,000-gallon UST. These tanks, all single wall construction steel, were removed for routine replacement.

As previously reported to the SMS, one former tank was in excellent condition while the remaining two tanks were observed to be in fair condition with corrosion apparent on the exterior surfaces. As determined by visual observations and photoionization (PID) screening, areas of petroleum contamination were identified within the excavation. Soils with the most significant PID levels include those in the vicinity of the UST fill lines and the area underlying the former 3,000-gallon capacity UST. The soils encountered within

the UST excavation consisted of sand and gravel to a depth of 9 feet below ground surface (ft bgs).

Groundwater encountered in the excavation was also observed to be contaminated. In order to investigate the potential that groundwater underlying the site may also be contaminated, three (3) on-SITE monitoring wells and one on-SITE drinking water supply well were sampled for volatile organic compounds (VOCs) by USEPA Method 8020. These wells were also surveyed for relative elevation in so that the direction of groundwater flow could be calculated.

5.0 SUBSURFACE EXPLORATION AND RESULTS

The subsurface exploration program was developed to gather data to provide a better understanding of the hydrogeology and contaminant distribution on SITE.

5.1 Advancement of Soil Borings

Four (4) soil borings were advanced using the Geoprobe™ on July 9, 1996 by TSEC in locations indicated on **Figure 2**. Boring logs for these borings are presented in **Appendix A**. These borings were advanced to depths ranging from 12 to 16 feet bgs. All borings were logged, describing soil strata conditions, and analyzed with the PID.

General soil conditions encountered at the SITE consisted of fine sand and gray silt. Groundwater was encountered at approximately 8 ft bgs. Contaminated soil was encountered during the installation of borings GPMW-101 and GPMW-103, both at depths of 11 ft bgs. A headspace analysis performed on these samples indicated VOCs present at a concentration of 17.0 parts-per-million volume (ppmv), and 180 ppmv respectively.

5.2 Monitor Well Installation

The four (4) above-mentioned borings were all converted into 1-inch groundwater monitoring wells. The wells were installed in the following locations and are depicted on the SITE Plan, **Figure 2**.

- Monitor Well GPMW-101 was installed downgradient of the former UST cavity;
- GPMW-102 was installed in the downgradient direction to the east of the former UST;
- GPMW-103 was installed to the southwest in the apparent crossgradient location of the former tank cavity; and
- GPMW-104 was installed to the south in a crossgradient to downgradient location from the former UST.

Further construction details of the monitor wells are presented below and in **Appendix A**: Boring Logs.

5.1.1 Monitor Well Construction

The newly installed wells are constructed of 1-inch schedule 40 polyvinylchloride (PVC) riser with 0.010-inch machine slotted screen. Standard construction techniques were used that include placing a clean filter pack in the boring annulus around the screened interval; a bentonite seal; a locking expansion plug to seal the top of the PVC riser; and a curb box set in concrete that is flush grade. The depths of the wells ranged from 11.5 to 16.0 ft bgs.

5.2 SITE Geology

A summary of the predominate geological units encountered during drilling activities indicated fine to medium sand overlying fine gray silt. For a more detailed description of geological units see Boring Logs, **Appendix A**.

According to the U.S. Department of Agriculture Soil Conservation Service Soil Survey of Chittenden County, soils in the vicinity of the SITE are part of the Adams Series, in particular, the Adams and Windsor loamy sands. The Adams Series consist of deep, loose, excessively-drained soils that are sandy throughout. These soils developed in sandy beaches, deltas, and terraces. In most places, this soil is underlain by stratified sand, gravel, sandy loam, glacial till, clay, silt, or bedrock.

Typically these soils have a black loamy sand surface layer about 1 inch thick. The subsoil from 1 to 7 inches consists of a light brownish-gray loamy sand. The subsoil from 7 to 9 inches consists of a dark reddish-brown loamy fine sand, and the substratum from 9 to 15 inches consists of dark yellowish-brown loamy fine sand. From 15 to 45 inches, loamy fine sand is encountered, yellowish-gray to 30 inches, and grayish-brown to 45 inches. Some areas mapped may contain Deerfield soils and Colton soils. Slopes range from 0 to 5 percent.

5.3 SITE Survey

A Topcon AT-G6 auto level was used to perform a stadia survey to identify the location of the newly installed monitor wells with respect to existing site features. The collected data was used to update the SITE Plan (**Figure 2**) to include the location of the newly installed wells. The water supply well located just off of the southwest corner of the Marvin's Market building was used as a benchmark, and given an assumed elevation of 100 feet.

6.0 COLLECTION OF GROUNDWATER SAMPLES

Groundwater sampling was performed at this SITE by TSEC on July 9, 1996. Samples were collected from the previously existing Monitor Wells MW-1, MW-3, and MW-4, as well as newly installed wells GPMW-101, GPMW-102, GPMW-103, and GPMW-104. The samples were submitted to a certified laboratory for analysis by USEPA Method 8020 for volatile organic compounds.

Prior to sampling, depth to groundwater measurements were made in all of the wells. Depth to water ranged from 7.01 to 8.84 ft bgs at wells GPMW-104 and GPMW-101 respectively.

To allow for a representative groundwater sample, each well was purged of three (3) volumes of water with a new disposable bailer. Purge water from the wells was discharged directly to the ground surface. Sampling at each location was conducted using the bailer, which was then dedicated to that well.

Quality assurance/Quality control (QA/QC) samples incorporated into this sampling round included one (1) duplicate sample taken from monitor well GPMW-101. The sample was analyzed via USEPA Method 8020 for volatile organic compounds. All chemical analyses for this round of groundwater sampling were performed by ChemServe Environmental Analysts (ChemServe) of Milford, New Hampshire. The results of the groundwater sampling round are discussed in the following sections.

7.0 RESULTS OF SAMPLING ACTIVITIES

7.1 Groundwater Flow Direction

Groundwater levels on SITE were measured by TSEC personnel on June 19, 1996. As previously mentioned, depth to groundwater ranged from 7.01 to 8.84 ft bgs at wells GPMW-104 and GPMW-101 respectively. A full analysis of groundwater elevation data is presented in **Table 1** (Groundwater Elevation Data).

Based on measured depths to groundwater observed in monitor wells on SITE at the time of sampling, groundwater underlying the SITE has been calculated to flow to the east-southeast in the overburden aquifer. A graphical interpretation of the groundwater elevation data is presented on the Water Table Elevation Map provided as **Figure 3**.

According to published hydraulic conductivity values for sand and gravel, the subsurface materials encountered at the SITE, the hydraulic conductivity for the aquifer ranges between 0.3 feet per day (ft/d) and 30 ft/d (Fetter, 1994). Under the site hydraulic gradient of 0.035 ft/ft, the calculated apparent groundwater flow velocity beneath the site ranges from 0.01 ft/d to 1.0 ft/d.

7.2 Analytical Results

VOC results received from ChemServe indicate that petroleum affiliated compounds are present in four (4) monitoring wells: MW-3, GPMW-101, GPMW-102, and GPMW-103. Benzene, toluene, and MTBE are present above their respective Maximum Contaminant Levels (MCLs) promulgated by the USEPA in monitor well MW-3, and benzene is present above the MCL in monitor wells GPMW-101 and GPMW-103. Duplicate results from GPMW-101 were also returned with benzene above the MCL.

Toluene was also detected in samples collected from monitor wells GPMW-101 and GPMW-103, but not above the MCL of 1,000 parts per billion (ppb). Ethylbenzene and total xylenes were also detected in all four wells, but below their MCLs of 700 ppb and 1,000 ppb respectively.

Samples collected from monitor wells MW-1, MW-4, and GPMW-104 were all returned with concentrations below the detection limits of laboratory instrumentation. The complete analytical laboratory report from ChemServe is provided as **Appendix B**, and graphical representations of the BTEX and MTBE distributions across the SITE are presented as **Figures 4** and **5.**

7.2.1 QA/QC Results

The relative percent difference (RPD) was calculated for BTEX compounds present in GPMW-101 to be 2%, well within accepted values for RPD. No other compounds were detected in any of the samples collected during this sampling round.

8.0 RECEPTOR EVALUATION

In a letter written by Mr. Richard Spiese of the State of Vermont Agency of Natural Resources Sites Management Section dated May 2, 1995, it was requested that a sensitive receptor survey be conducted in the vicinity of the SITE. This survey was to include basements of adjacent buildings, nearby surface water, and any public or private drinking water wells that are located within the vicinity of the SITE. TSEC conducted this survey on September 5, 1996.

During the survey, downgradient receptors were identified and investigated for the presence of petroleum related contamination resulting from the former USTs at the SITE. Downgradient receptors identified include the on-SITE drinking water well, the hill slope between the Marvin's Market property and the railroad right-of-way, and Indian Brook. There were no potential receptors identified directly upgradient from the SITE.

A groundwater sample was collected from the cold water tap in the Marvin's Market store and submitted to Endyne Laboratory Services Inc. of Williston, Vermont. Results of the analysis indicate that the deeper groundwater zone(s) tapped by the well have not been affected by the petroleum related contamination present in the shallow groundwater beneath the SITE. The results of this analysis are presented in **Appendix C**.

No evidence of petroleum contamination was discovered during a visual inspection of the hill slope between the SITE and the railroad such as contaminated seeps, springs, or stressed vegetation, and it has been determined that Indian Brook is located too far away to be considered an immediate receptor.

9.0 SUMMARY AND CONCLUSIONS

Based on the information and analytical data obtained during this investigation, TSEC concludes the following:

- The source of the contamination, the former gasoline USTs at the site, has been removed. New tanks are now in place.

- With groundwater contamination migrating to the east away from all drinking water receptors in the immediate vicinity of the SITE (¼-mile), with the exception of the on-SITE drinking water well, there is little concern for impact to drinking water sources.

- Contamination is most likely isolated in the shallow overburden water bearing zone, due to the presence of a less permeable silt layer located between 11.0 and 15.0 ft bgs.

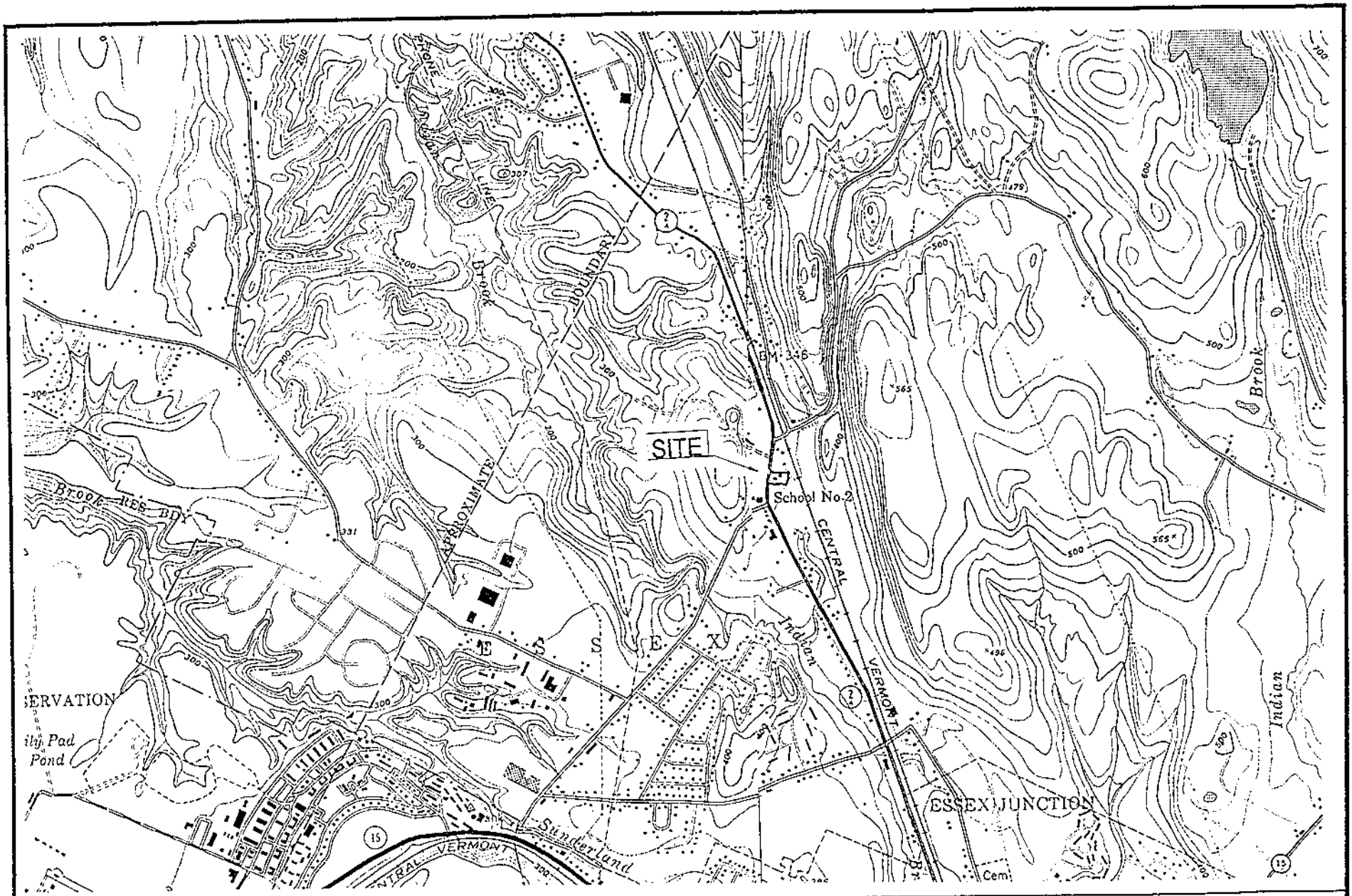
- The on-SITE drinking water well has not been impacted by BTEX or MTBE compounds released from the former USTs on SITE.

10.0 RECOMMENDATIONS

Based on the presence of contamination in both soil and groundwater at the SITE, TSEC recommends the following:

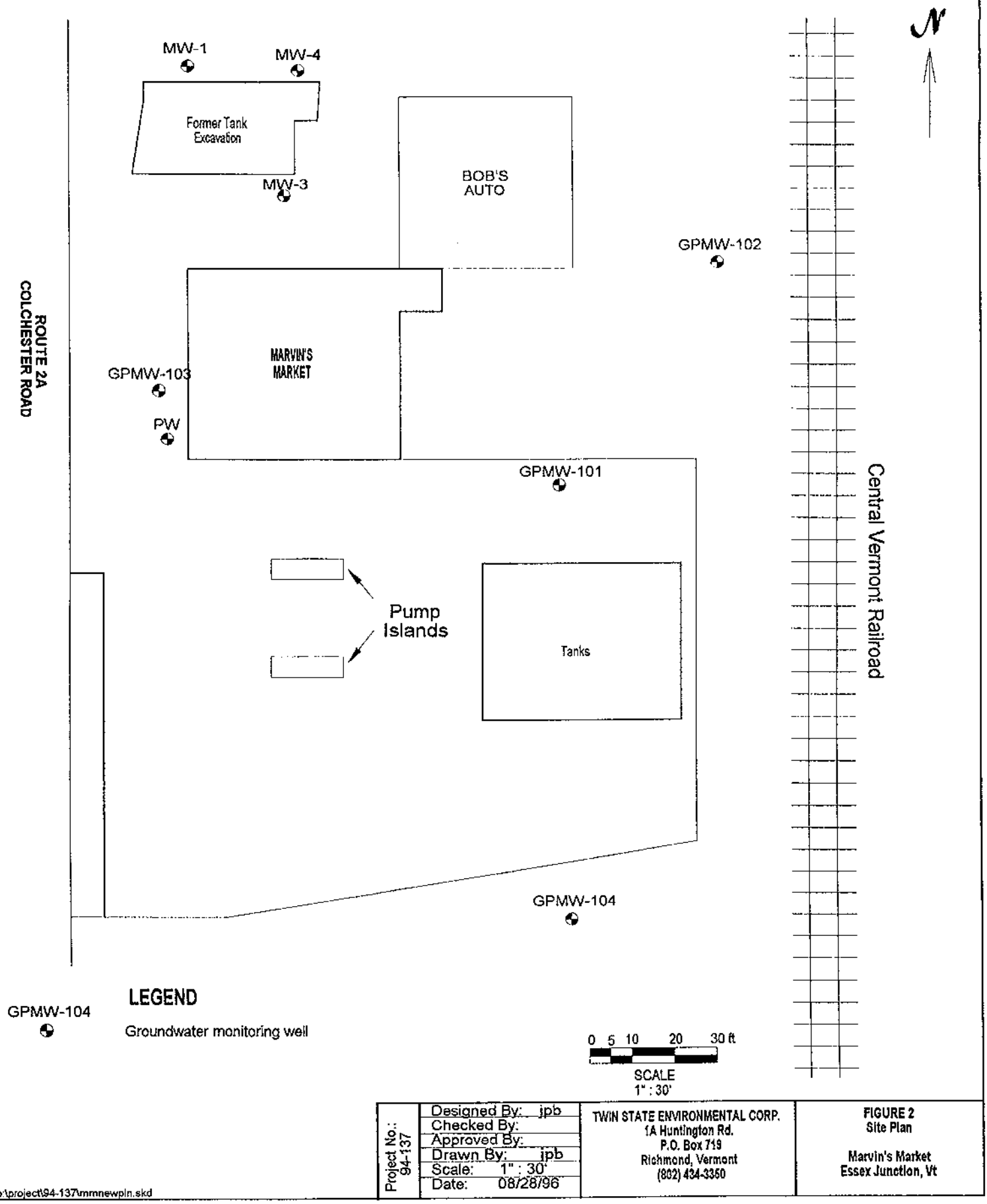
- Based on the extent of groundwater contamination present, a quarterly monitoring program is suggested. This program would include the sampling of the seven (7) on-SITE groundwater monitoring wells in addition to the on-SITE drinking water well. Additionally, based on the calculated groundwater flow direction, the hill slope towards the east of the property that slopes to the railroad tracks should be monitored for the presence of petroleum hydrocarbon contaminated groundwater seepage.

FIGURES



Source: USGS 7.5 Minute Series
Burlington and Essex Junction Quadrangles

Project No: 94-137	Designed By: jpb Checked By: Approved By: Drawn By: Scale: 1" = 2000' Date: 08/20/96	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 1 SITE LOCATION MAP Marvin's Market Essex Jct., Vermont



Project No.: 94-137	Designed By: jpb Checked By: Approved By: Drawn By: jpb Scale: 1" : 30' Date: 08/28/96	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 2 Site Plan Marvin's Market Essex Junction, Vt

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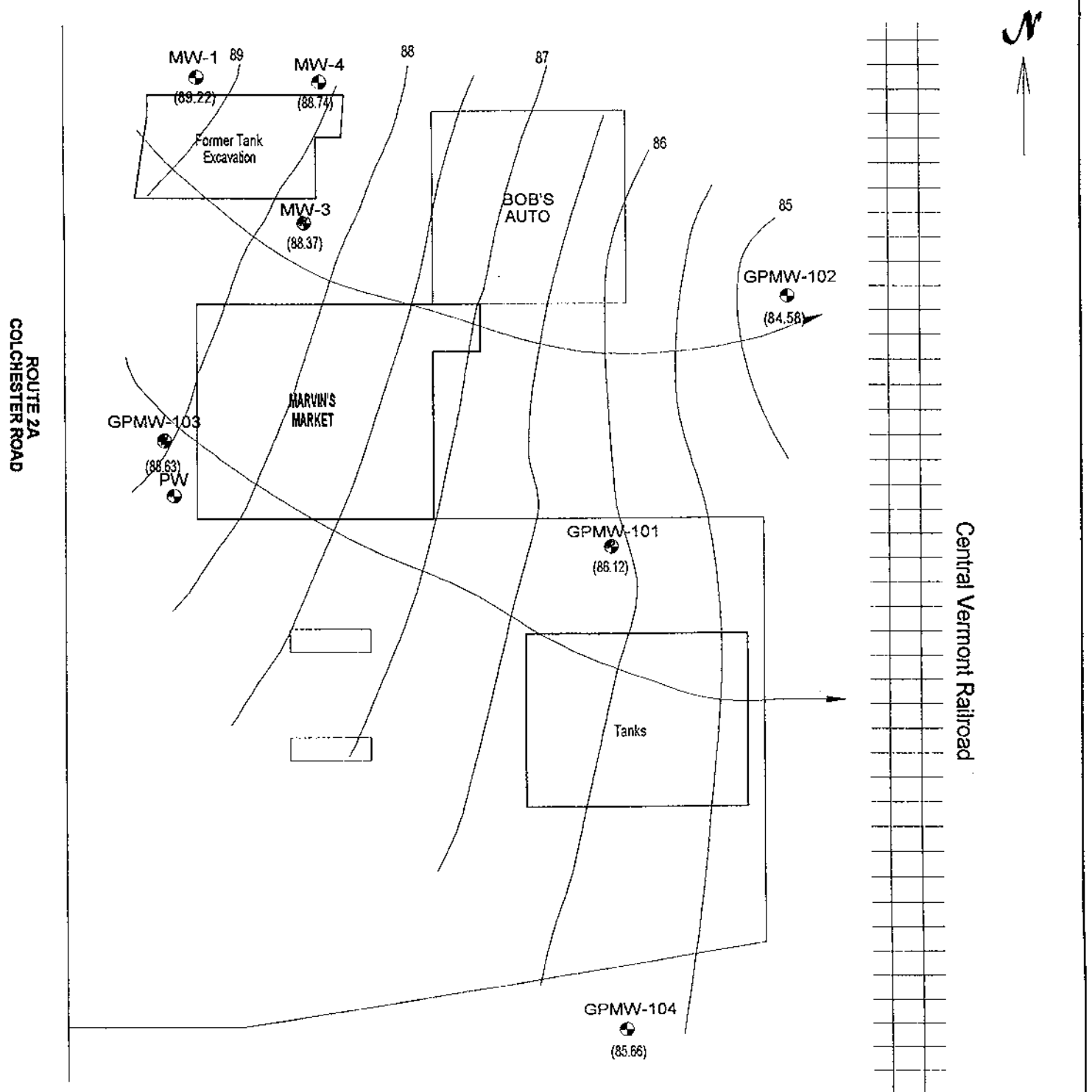

LEGEND

GPMW-104 (85.66) — Groundwater monitoring well (with water table elevation in feet)

87 — Groundwater elevation contour (with elevation in feet)

Groundwater flow direction

0 5 10 20 30 ft

SCALE
1" : 30'

Project No.: 94-137	Designed By: jpb Checked By: Approved By: Drawn By: jpb Scale: 1" : 30' Date: 08/28/96	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 3 Groundwater Elevations July 17, 1996 Marvin's Market Essex Junction, Vt

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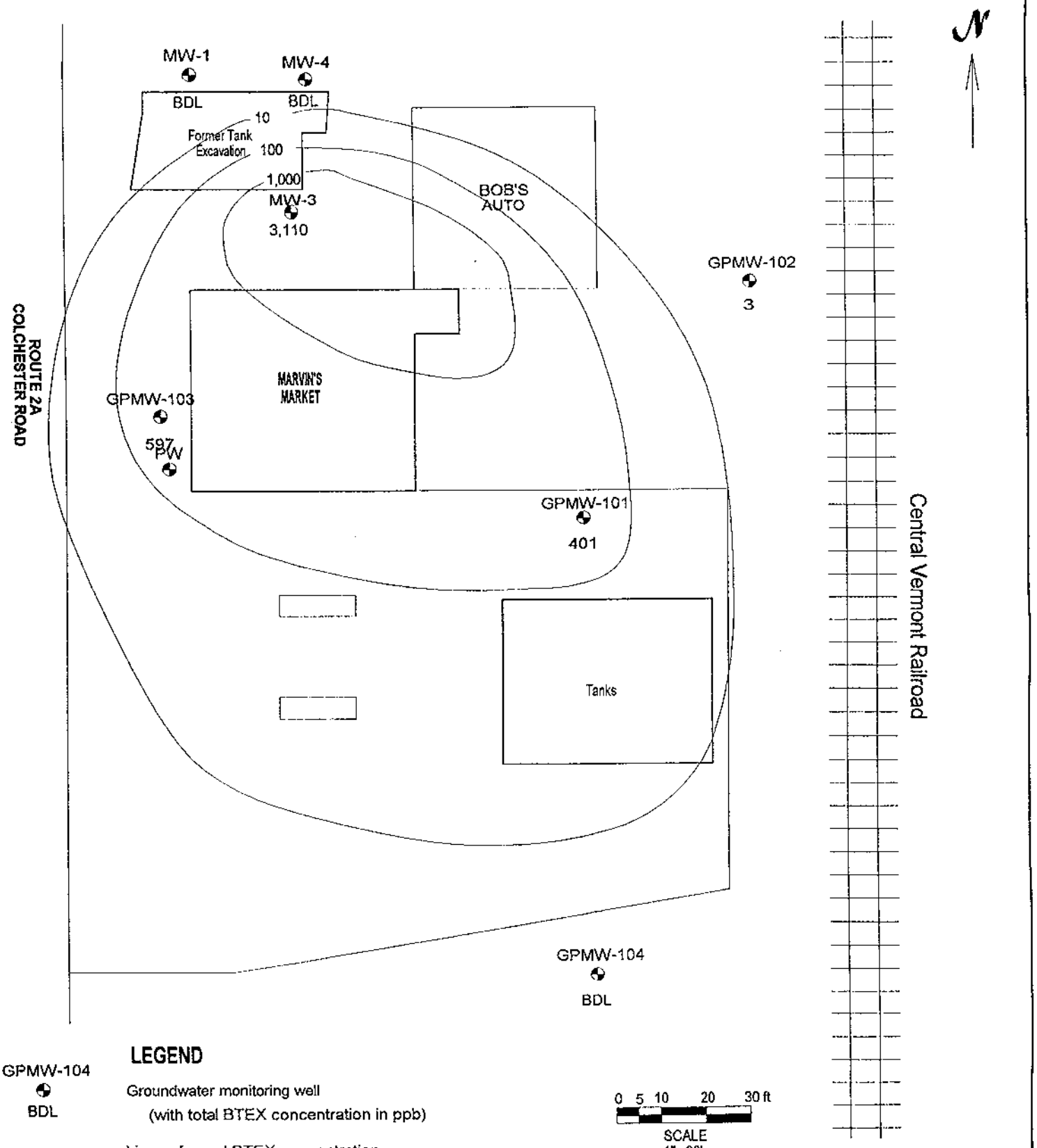

Project No.: 94-137	Designed By: jpb Checked By: Approved By: Drawn By: jpb Scale: 1" : 30' Date: 08/28/96	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3350	FIGURE 4 BTEX Concentrations July 17, 1996 Marvin's Market Essex Junction, Vt

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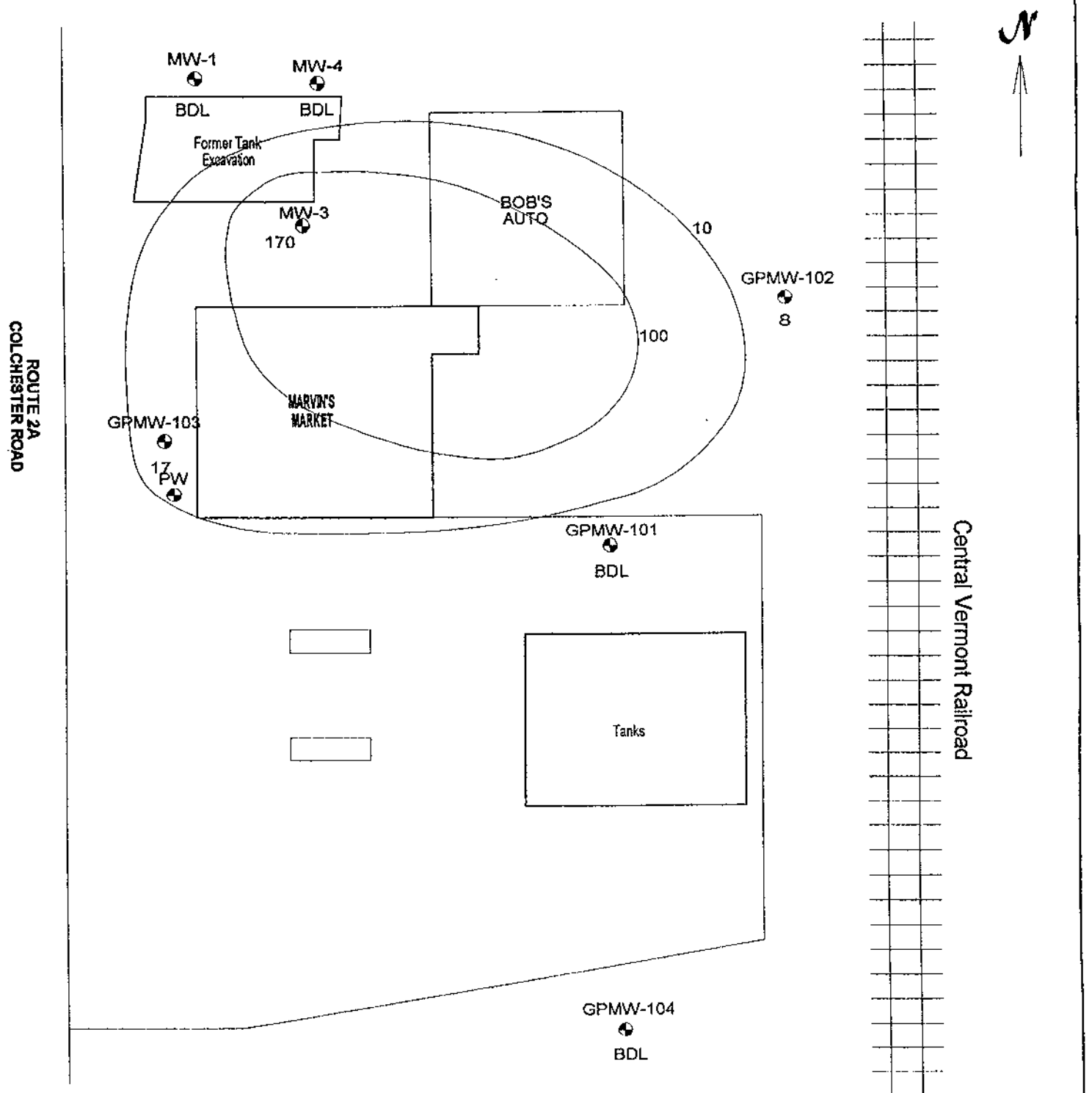

Project No.: 94-137	Designed By: jpb Checked By: Approved By: Drawn By: jpb Scale: 1" : 30' Date: 08/28/96	TWIN STATE ENVIRONMENTAL CORP. 1A Huntington Rd. P.O. Box 719 Richmond, Vermont (802) 434-3360	FIGURE 6 MTBE Concentrations July 17, 1996 Marvin's Market Essex Junction, Vt

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TABLES

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS

Marvin's Market
Essex Junction, Vermont

July 17, 1996

Well Identification	Top of Riser Elev.	Depth to Product	Depth to Water	Depth of Well	Thickness of Water Table in Well	Water Table Elev.
MW-1	96.50	ND	7.28	12.25	4.97	89.22
MW-3	96.48	ND	8.11	12.95	4.84	88.37
MW-4	96.05	ND	7.31	12.92	5.61	88.74
GPMW-101	94.96	ND	8.84	14.41	5.57	86.12
GPMW-102	92.75	ND	8.17	11.16	2.99	84.58
GPMW-103	97.13	ND	8.50	11.20	2.70	88.63
GPMW-104	92.67	ND	7.01	14.35	7.34	85.66

Notes:

Elevation data are referenced to a TBM and are in units of feet.

ND - Not detected.

NA - Not applicable.

Measurements recorded are referenced to a marking on top of PVC riser for each well.

Depth to fluid measurements were obtained using a Solinst Interface Probe.

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TABLE 2

SUMMARY OF GROUNDWATER QUALITY

Marvin's Market
Essex Junction, Vermont

July 17, 1996

Test	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	MTBE
Sample ID	Concentration, ppb					
MW-1	BDL	BDL	BDL	BDL	--	BDL
MW-3	***70***	***1,150***	460	1,430	3,110	***170***
MW-4	BDL	BDL	BDL	BDL	--	BDL
GPMW-101	*7*	23	82	289	401	BDL
GPMW-102	BDL	BDL	BDL	3	3	8
GPMW-103	***42***	20	83	452	597	17
GPMW-104	BDL	BDL	BDL	BDL	--	BDL
GPMW-101 DUP	***15***	40	78	277	410	BDL
Trip Blank	BDL	BDL	BDL	BDL	BDL	BDL
MCL	5	1,000	700	10,000	--	40 (1)

Notes:

BDL - Below Detection Limit for Laboratoey Equipment

MCL - Maximum Contaminant Level promulgated by USEPA.

(1) - Vermont Health Advisory (VHA) standard for MTBE.

All samples were tested using EPA Method 8020.

Bold and italic numbers indicate concentrations that exceed USEPA MCL or VHA standards.

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APPENDIX A

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: GPMW-101	DEPTH OF WELL: 15' DEPTH OF BORING: 16'
PROJECT NAME: Marvin's Market	DEPTH TO WATER:
PROJECT NO.: 94-137	SCREEN DIA.: DEPTH:
INSTALL DATE: 7/9/96	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
TSEC REP.: John Piego	RISER TYPE: Sched 40 PVC
DRILLING CO.: TSEC	RISER DIA.: 1" DEPTH:
DRILLING METHOD: Geoprobe w/macrocore	GUARD TYPE:
SAMPLING METHOD:	RISER CAP:

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES
1					
2		0-4'	Ø		— well-sorted, fine-med. dry sand fill.
3					
4					
5					
6		4-8'			— well-sorted fine-med. dry sand fill.
7					
8					
9					— well-sorted fine-med sand (8-11').
10		8-12'			
11		11'	17		— fine wet sand (11-12') Oxidation at 11'.
12					
13					
14		12-16'			— fine grey sand (12-15.5'), grey silty clay (15.5-16')
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

LEGEND: CEMENT GROUT; NATIVE BACKFILL; BENTONITE SEAL; SAND PACK; WELL SCREEN; RISER PIPE; WATER LEVEL (APPROX)

GRANULAR SOILS	
BLOWS/FT	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	M.DENSE
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT	DENSITY
<2	V.SOFT
2-4	SOFT
4-8	M.STIFF
8-15	STIFF
15-30	V.STIFF
>30	HARD

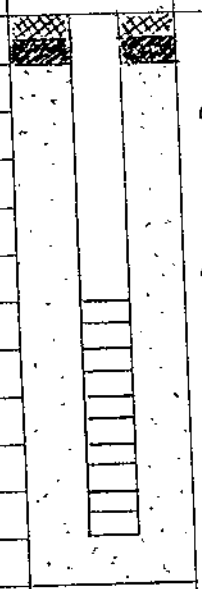
PROPORTIONS USED	
TRACE	0-10%
LITTLE	10-20%
SOME	20-35%
AND	35-50%

NOTES:
1. The density of soils were determined by field observations. Ref. to blow counts may not be accurate due to stones, cobbles or boulders that may be encountered.

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: GPMW-102
PROJECT NAME: Mavin's Market
PROJECT NO.: 94-133
INSTALL DATE: 7/9/96
TSEC REP.: John Diego
DRILLING CO.: TSEC
DRILLING METHOD: GeoProbe
SAMPLING METHOD:

DEPTH OF WELL: 11' DEPTH OF BORING: 12'
DEPTH TO WATER:
SCREEN DIA.: DEPTH:
SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
RISER TYPE: Sched 40 PVC
RISER DIA.: 1" DEPTH:
GUARD TYPE:
RISER CAP:

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES
1–12		0-4'			– Med.-coarse sand & gravel fill.
		4-8'	ϕ		– brown well-sorted fine-med sand.
		8-12'	ϕ		– brown well-sorted fine-med sand (8-11'), grey fine silt at 11'.

LEGEND: CEMENT GROUT; NATIVE BACKFILL; BENTONITE SEAL; SAND PACK; WELL SCREEN; RISER PIPE; WATER LEVEL (APPROX)

GRANULAR SOILS	
BLOWS/FT	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	M.DENSE
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT	DENSITY
<2	V.SOFT
2-4	SOFT
4-8	M.STIFF
8-15	STIFF
15-30	V.STIFF
>30	HARD

PROPORTIONS USED	
TRACE	0-10%
LITTLE	10-20%
SOME	20-35%
AND	35-50%

NOTES:
1. The density of soils were determined by field observations. Ref. to blow counts may not be accurate due to stones, cobbles or boulders that may be encountered.

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: GPMW-103	DEPTH OF WELL: 11.5' DEPTH OF BORING: 12'
PROJECT NAME: Marvin's Market	DEPTH TO WATER:
PROJECT NO.: 94-137	SCREEN DIA.: DEPTH:
INSTALL DATE: 7/9/96	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
TSEC REP.: John Diego	RISER TYPE: Sched 40 PVC
DRILLING CO.: TSEC	RISER DIA.: 1' DEPTH:
DRILLING METHOD: GeoProbe	GUARD TYPE:
SAMPLING METHOD:	RISER CAP:

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES
1					
2		0-4'			- Med sand & gravel fill.
3					
4					
5		4-8'	ϕ		- brown well-sorted med. sand.
6					
7					
8		8-12'			- brown med sand (8-11').
9					
10					
11		11'	180'		- black petroleum staining & odor, grey silt.
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

LEGEND: CEMENT GROUT; NATIVE BACKFILL; BENTONITE SEAL; SAND PACK; WELL SCREEN; RISER PIPE; WATER LEVEL (APPROX)

GRANULAR SOILS	
BLOWS/FT	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	M.DENSE
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT	DENSITY
<2	V.SOFT
2-4	SOFT
4-8	M.STIFF
8-15	STIFF
15-30	V.STIFF
>30	HARD

PROPORTIONS USED	
TRACE	0-10%
LITTLE	10-20%
SOME	20-35%
AND	35-50%

NOTES:
1. The density of soils were determined by field observations. Ref. to blow counts may not be accurate due to stones, cobbles or boulders that may be encountered.

TWIN STATE ENVIRONMENTAL CORP.
MONITORING WELL/SOIL BORING LOG

WELL/BORING NO.: GPSB-104	DEPTH OF WELL: 15' DEPTH OF BORING: 16'
PROJECT NAME: Marvin's Market	DEPTH TO WATER:
PROJECT NO.: 94-137	SCREEN DIA.: DEPTH:
INSTALL DATE: 7/9/96	SCREEN TYPE/SIZE: Sched. 40 PVC, 0.010 in. mach. slot
TSEC REP.: John Diego	RISER TYPE: Sched 40 PVC
DRILLING CO.: TSEC	RISER DIA.: DEPTH:
DRILLING METHOD: GeoProbe	GUARD TYPE:
SAMPLING METHOD:	RISER CAP:

DEPTH IN FEET	WELL PROFILE	SAMPLE DEPTH (FT)	PID (PPMV)	BLOWS/6" AND RECOVERY	SOIL DESCRIPTION AND NOTES
1–16		0-4'			– brown sand off auger
		4-8'	∅		– brown well-sorted fine-med. sand over grey fine-med sand.
		8-12'			– grey well-sorted fine-med wet sand.
		12-16'			– grey well-sorted fine-med. wet sand over grey silt at 15'.

LEGEND: CEMENT GROUT; NATIVE BACKFILL; BENTONITE SEAL; SAND PACK; WELL SCREEN; RISER PIPE; WATER LEVEL (APPROX)

GRANULAR SOILS	
BLOWS/FT	DENSITY
0–4	V.LOOSE
4–10	LOOSE
10–30	M.DENSE
30–50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT	DENSITY
<2	V.SOFT
2–4	SOFT
4–8	M.STIFF
8–15	STIFF
15–30	V.STIFF
>30	HARD

PROPORTIONS USED	
TRACE	0–10%
LITTLE	10–20%
SOME	20–35%
AND	35–50%

NOTES:
1. The density of soils were determined by field observations. Ref. to blow counts may not be accurate due to stones, cobbles or boulders that may be encountered.

APPENDIX B

ChemServe ENVIRONMENTAL ANALYSTS

317 Elm Street
Milford, N.H. 03055
(603) 673-5440
FAX (603) 673-0366

JUL 26 REC'D

July 24, 1996

Mr. Ken Bisceglio
Twin State Environmental
Commercial Park 1A Huntington Rd
P O Box 719
Richmond VT 05477

Job Name	**:**	**Marvins Market**	**Laboratory #**	**:**	**G18-96-03**
Job #	**:**	**94-137**	**Purchase Order #**	**:**	**N/A**
Location	**:**	**Essex Jct., VT**	**Control #**	**:**	**17773 & 17775**

Dear Mr. Bisceglio,

Enclosed please find the laboratory results for the above referenced samples which were received by the Chemserve sample custodian, under chain of custody control numbers listed above on July 18, 1996. Samples were collected by Rod Lindsay II on July 17, 1996. Any abnormalities to the samples would be noted on the enclosed chain of custody document or laboratory report form. Chemserve follows protocols for analysis corresponding to the methods referenced unless a modification is noted. Unless otherwise stated, all holding times, preservation techniques and container types are analogous with those outlined by the U.S. EPA.

A formal quality assurance/quality control QA/QC program is maintained and updated by Chemserve on a routine basis. This QA/QC manual is available upon request.

This report is not valid without a completed Chemserve chain of custody with the corresponding control number, attached.

If you have questions or concerns regarding this analysis, please feel free to contact me.

Sincerely,

Jay W. Chrystal
President/Laboratory Director

Enclosures

CHEMSERVE COMPANY
OFFICIAL
SEAL
STATE CERTIFIED

ChemServe
ENVIRONMENTAL ANALYSIS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-101

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	7	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	23	1
ETHYLBENZENE	82	1
TOTAL XYLENES	289	1

BDL=BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSTS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-102

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	BDL	1
METHYL-TERTIARY-BUTYL ETHER	8	1
TOLUENE	BDL	1
ETHYLBENZENE	BDL	1
TOTAL XYLENES	3	1

BDL=BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSIS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-103

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	42	1
METHYL-TERTIARY-BUTYL ETHER	17	1
TOLUENE	20	1
ETHYLBENZENE	83	1
TOTAL XYLENES	452	1

BDL = BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSIS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-104

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/18/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	BDL	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	BDL	1
ETHYLBENZENE	BDL	1
TOTAL XYLENES	BDL	1

BDL=BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSIS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-1

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	BDL	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	BDL	1
ETHYLBENZENE	BDL	1
TOTAL XYLENES	BDL	1

BDL = BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSTS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-3

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/18/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 10
BENZENE	70	1
METHYL-TERTIARY-BUTYL ETHER	170	1
TOLUENE	1,150	1
ETHYLBENZENE	460	1
TOTAL XYLENES	1,430	1

BDL = BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe ENVIRONMENTAL ANALYSTS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: MW-4

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	BDL	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	BDL	1
ETHYLBENZENE	BDL	1
TOTAL XYLENES	BDL	1

BDL = BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSTS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: DUP-1

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/19/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	15	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	40	1
ETHYLBENZENE	78	1
TOTAL XYLENES	277	1

BDL=BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSIS

VOLATILE ORGANIC ANALYSIS
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

JOB#: 94-137

SAMPLE IDENTITY: T.B.

CONTROL#: 17773+17775

DATE SAMPLED: 07/17/96

DATE REC'D: 07/18/96

DATE ANALYZED: 07/18/96

MATRIX: LIQUID

PERCENT MOISTURE: N/A

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 1
BENZENE	BDL	1
METHYL-TERTIARY-BUTYL ETHER	BDL	1
TOLUENE	BDL	1
ETHYLBENZENE	BDL	1
TOTAL XYLENES	BDL	1

BDL= BELOW DETECTION LIMIT

ANALYZED BY: DM

ChemServe
ENVIRONMENTAL ANALYSTS

TWIN STATE ENVIRONMENTAL CORP.

JOB NAME : MARVINS MARKET
JOB # : 94-137
LOCATION : ESSEX JCT., VT

LABORATORY # : G18-96-03
CONTROL # : 17773 & 17775
DATE SAMPLED : 07/17/96

QUALITY CONTROL STATEMENT

All samples analyzed by Chemserve are subject to quality standards. These standards are either as stringent or more stringent than those established under 40 CFR Part 136, state certification programs, and corresponding methodologies. Chemserve has a written QA/QC Procedures Manual which outlines these standards, and is available, upon request, for your reference. Written reports and validation summaries comply with established quality guidelines with the exception of any deviations already noted within the report.

Certification:

I certify that I have reviewed the above referenced analytical data and written report, and I have found this report within compliance with the procedures outlined in the Chemserve QA/QC Procedures Manual.

Certified by: Linda Carleton-Henderson

Linda Carleton-Henderson - QA/QC Administrator

qaqcstmt/Revised 04/22/96

ChemServe
ENVIRONMENTAL ANALYSTS

SPIKE RECOVERY FORM
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

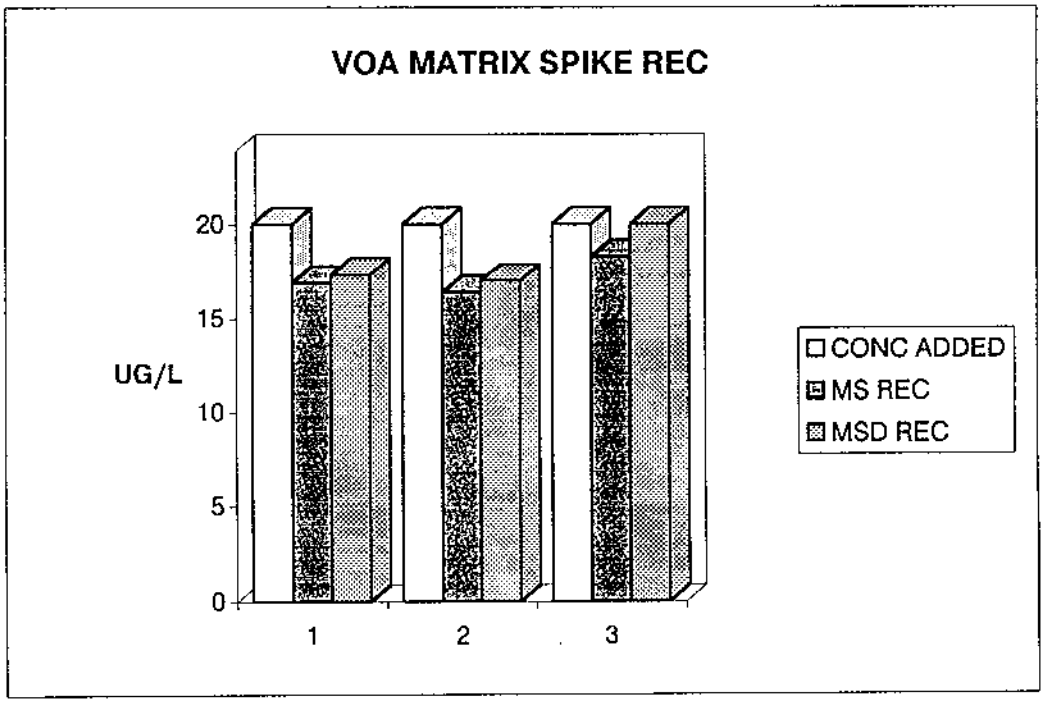
JOB#: 94-137

SAMPLE IDENTITY: QC SPIKES / 17957

CONTROL#: 17773+17775

DATE ANALYZED: 07/19/96

COMPOUND	CONC ADDED (UG/L)	AMT REC (UG/L)	DUP AMT REC (UG/L)	%REC	DUP % REC	%DIFF
BENZENE	20	16.88	17.29	84%	86%	2%
TOLUENE	20	16.40	16.98	82%	85%	3%
CHLOROBENZENE	20	18.26	20.00	91%	100%	9%



CONTROL LIMITS +,- 25%

ChemServe
ENVIRONMENTAL ANALYSTS

SPIKE RECOVERY FORM
EPA METHOD 8020

CUSTOMER: TWIN STATE ENVIRONMENTAL CORP.

LAB#: G18-96-03

SAMPLE LOCATION: MARVINS MARKET ESSEX JCT., VT

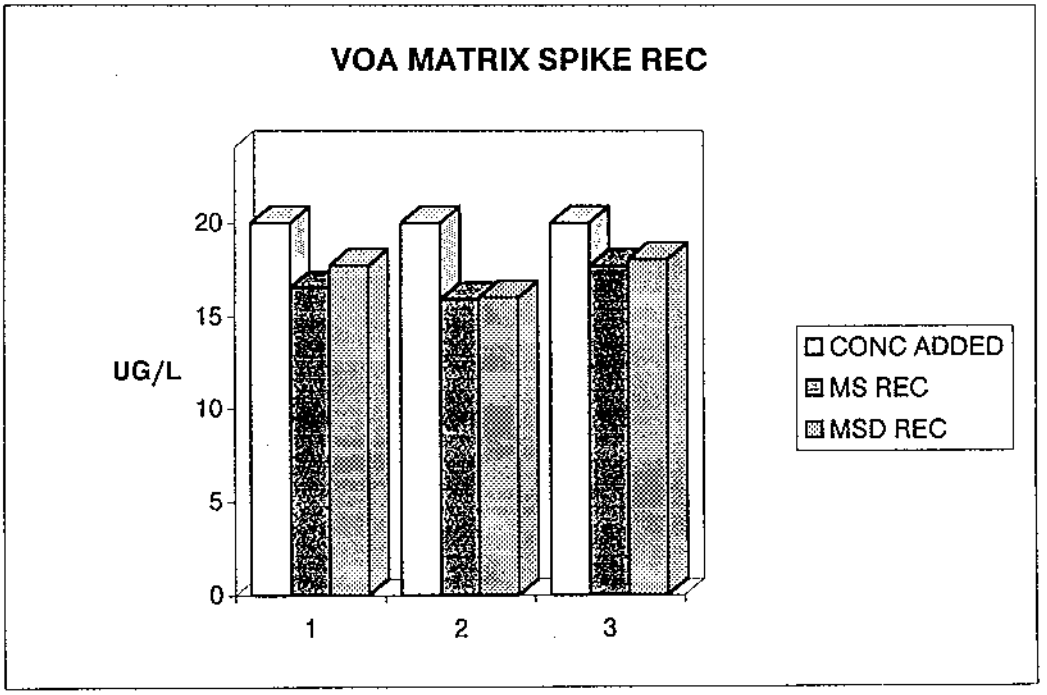
JOB#: 94-137

SAMPLE IDENTITY: QC SPIKES / 17775

CONTROL#: 17773+17775

DATE ANALYZED: 07/18/96

COMPOUND	CONC ADDED (UG/L)	AMT REC (UG/L)	DUP AMT REC (UG/L)	%REC	DUP % REC	%DIFF
BENZENE	20	16.55	17.74	83%	89%	6%
TOLUENE	20	15.91	16.00	80%	80%	0%
CHLOROBENZENE	20	17.72	18.06	89%	90%	2%



CONTROL LIMITS +,- 25%

G18-96-Q3
CONTROL NO. 17775 + 17773
7/30/96
8/1/96

ChemServe ENVIRONMENTAL ANALYSIS

1 of 2

317 Elm Street
Milford, NH 03055
(603) 673-5440
FAX (603) 673-0366

CHAIN OF CUSTODY

(A) CUSTOMER INFORMATION

CUSTOMER: Twin State Gas Corp.
ADDRESS: 1A Huntington Rd. Richmond VT 05477
TELEPHONE: 802 434 3350
CONTACT PERSON: Ken Biscaglia
P.O. NUMBER:

(B) PROJECT INFORMATION

JOB NAME: Marvins Market
JOB NUMBER: 94-137
LOCATION: Rt 5 & 2 Jct., VT
TELEPHONE:
CONTACT PERSON: (PRINT)

(C) SAMPLE INFORMATION

TURNAROUND TIME: (CIRCLE ONE)

(STANDARD) RUSH

RUSH T.A.T. _____ (Check with lab)

(D) STATION #	(E) SAMPLE IDENTIFICATION & LOCATION	(F) DATE COLLECTED	(G) TIME COLLECTED	(H) SAMPLE TYPE GRAB	(H) SAMPLE TYPE COMP	(I) MATRIX SOLID (S) LIQUID (L) COMBINED (C) HAZARD (H)	(J) # OF CONTAINERS	(K) CONTAINER & PRESERVATIVE 40ml/VOA w/HCl 1 liter	(L) ANALYSIS
	MW-101	7/17	1021	✓		L	2	✓	8020 + MTBE
	MW-102		1001	✓		L	2	✓	
	MW-103		0946	✓		L	2	✓	
	MW-104		1036	✓		L	2	✓	
	MW-1		1154	✓		L	2	✓	
	MW-3		1148	✓		L	2	✓	
	MW-4	✓	1115	✓		L	2	✓	

(M) CUSTODY

(PRINT NAME) SAMPLER: Ed Hinds III	SIGNATURE: Ed Hinds	MILITARY DATE/TIME: 7-17-96 0930
RELINQUISHED:		MILITARY DATE/TIME: 7-17-96 1257
RECEIVED:		MILITARY DATE/TIME:
RELINQUISHED:		MILITARY DATE/TIME:
RECEIVED FOR LABORATORY:		MILITARY DATE/TIME: 7-18-96 1115

LAB USE ONLY

A B C D E F G H I J K L M

G18-96-03

CONTROL NO. 17773 & 17775 7/30/96 8/1/96

ChemServe ENVIRONMENTAL ANALYSIS

2 of 2

317 Elm Street
Milford, NH 03055
(603) 673-5440
FAX (603) 673-0366

CHAIN OF CUSTODY

Ⓐ CUSTOMER INFORMATION

CUSTOMER: Twin State Gas Corp.

ADDRESS: Lafountain Rd. Richmond, VT 05477

TELEPHONE: 802-434-3350

CONTACT PERSON: Ken Bisnette

P.O. NUMBER:

Ⓑ PROJECT INFORMATION

JOB NAME: Marvins Market

JOB NUMBER: 94-137

LOCATION: Essex Jct, VT

TELEPHONE:

CONTACT PERSON: (PRINT)

Ⓒ SAMPLE INFORMATION

TURNAROUND TIME: (CIRCLE ONE)

(STANDARD) RUSH

RUSH T.A.T. _____ (Check with lab)

Ⓓ STATION #	Ⓔ SAMPLE IDENTIFICATION & LOCATION	Ⓕ DATE COLLECTED	Ⓖ TIME COLLECTED	Ⓗ SAMPLE TYPE GRAB	Ⓗ SAMPLE TYPE COMP	Ⓘ MATRIX SOLID (S) LIQUID (L) COMBINED (C) HAZARD (H)	Ⓙ # OF CONTAINERS	Ⓚ CONTAINER & PRESERVATIVE (HCl / unpres / HNO3)	Ⓛ ANALYSIS
	Dup-1	7/17	1210	✓		L	2	✓	8020 + MTBE
	T.B	7/17	0932	✓		L	2	✓	8020 + MTBE

Ⓜ CUSTODY

(PRINT NAME) SAMPLER: Rod Linton	SIGNATURE:	MILITARY DATE/TIME: 7.17.96 0930
RELINQUISHED:		MILITARY DATE/TIME: 7-17-96 1300
RECEIVED:		MILITARY DATE/TIME:
RELINQUISHED:		MILITARY DATE/TIME:
RECEIVED FOR LABORATORY:		MILITARY DATE/TIME: 7-18-96 1015

LAB USE ONLY

A B C D E F G H I J K L M

The State of New Hampshire
Department of Environmental Services

CERTIFICATE OF APPROVAL
Wastewater Analysis

Issued to
Chemserve, Inc.

Located at
Elm Street, Milford, NH

Under the provisions of the Regulations in Env-C300
for the following analyses:

FULL CERTIFICATION: Total Coliform by Membrane Filtration, Fecal Coliform by Membrane Filtration, ICP Metals, Metals by Graphite Furnace, Mercury, pH, TDS, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Fluoride, Sulfate, Ammonia, Nitrate-N, Orthophosphate, TKN, Total Phosphorus, COD, BOD, Non-Filterable Residue, Oil & Grease, Total Phenolics, PCBs in Water, PCBs in Oil, Pesticides, and Volatile Organics.

PROVISIONAL CERTIFICATION: None.

REPLACES CERTIFICATE #100895-B

CERTIFICATE NUMBER: 100895-D

DATE OF ISSUE: May 23, 1996

EXPIRATION DATE: December 2, 1996

Charles M. Rowe
Certifying Officer

The State of New Hampshire
Department of Environmental Services

CERTIFICATE OF APPROVAL
Drinking Water Analysis

Issued to
Chemserve, Inc.

Located at
Elm Street, Milford, NH

Under the provisions of the Regulations in Env-C300
for the following analyses:

FULL CERTIFICATION: Total Coliform by Membrane Filtration, Fecal Coliform by Membrane Filtration, Colilert-MPN, Metals by Graphite Furnace, Metals by ICP, Mercury, Nitrate-N, Fluoride, Nitrite-N, Turbidity, Total Filterable Residue, Calcium, pH, Alkalinity, Corrosivity, Sodium, Sulfate, Trihalomethanes, Volatile Organics, Vinyl Chloride, and EDB.

PROVISIONAL CERTIFICATION: Total Cyanide.

REPLACES CERTIFICATE #100895-A

CERTIFICATE NUMBER: 100895-C

DATE OF ISSUE: December 19, 1995

EXPIRATION DATE: December 2, 1996

Charles M. Rowe
Certifying Officer

APPENDIX C

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Twin State Environmental Corp.
PROJECT NAME: Marvin's Market
REPORT DATE: September 6, 1996
DATE SAMPLED: September 5, 1996

PROJECT CODE: TSEC1010
REF.#: 93,369

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

EPA METHOD 602--PURGEABLE AROMATICS

CLIENT: Twin State Environmental Corp.
PROJECT NAME: Marvin's Market
REPORT DATE: September 6, 1996
DATE SAMPLED: September 5, 1996
DATE RECEIVED: September 5, 1996
DATE ANALYZED: September 6, 1996

PROJECT CODE: TSEC1010
REF.#: 93,369
STATION: Cold Tap
TIME SAMPLED: 12:35
SAMPLER: Rod Lindsey

Parameter	Detection Limit (ug/L)	Concentration (ug/L)
Benzene	1	ND[1]
Chlorobenzene	1	ND
1,2-Dichlorobenzene	1	ND
1,3-Dichlorobenzene	1	ND
1,4-Dichlorobenzene	1	ND
Ethylbenzene	1	ND
Toluene	1	ND
Xylenes	1	ND
MTBE	10	ND

Bromobenzene Surrogate Recovery: 96%

NUMBER OF UNIDENTIFIED PEAKS FOUND: 0

NOTES:

1 None detected

ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 602 LABORATORY REPORT

MATRIX SPIKE AND DUPLICATE LABORATORY CONTROL DATA

CLIENT: Twin State Environmental Corp.
PROJECT NAME: Marvin's Market
REPORT DATE: September 6, 1996
DATE SAMPLED: September 5, 1996
DATE RECEIVED: September 5, 1996
DATE ANALYZED: September 6, 1996

PROJECT CODE: TSEC1010
REF.#: 93,369
STATION: Cold Tap
TIME SAMPLED: 12:35
SAMPLER: Rod Lindsey

Parameter	Sample(ug/L)	Spike(ug/L)	Dup1(ug/L)	Dup2(ug/L)	Avg % Rec
Benzene	ND[1]	10	10.9	10.4	107%
Toluene	ND	10	10.6	10.3	105%
Ethylbenzene	ND	10	10.9	10.4	107%
Xylenes	ND	30	31.4	29.1	101%

NOTES:
1 None detected

ENDYNE, INC.

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333

19022

CHAIN-OF-CUSTODY RECORD

Project Name: Marvin's Market Site Location: Essex, VT	Reporting Address: same as → 	Billing Address: 14 Huntington Rd. Richmond, VT 05477
Endyne Project Number: TSEC 1010 94-137	Company: Twin State Env. Corp. Contact Name/Phone #: Ken Bierykla	Sampler Name: Rod. Lindsay Phone #: 802-434-3350

Lab #	Sample Location	Matrix	GRAB	COMP	Date/Time	Sample Containers No.	Sample Containers Type/Size	Field Results/Remarks	Analysis Required	Sample Preservation	Rush
93,369	cold Tap	L	✓		9.5.96 1235	2	40ml VOA		8020 + MTBE	HCL pH <2	

Relinquished by: Signature	Received by: Signature	Date/Time
Relinquished by: Signature	Received by: ~~Signature~~ Lorie M. Charbonneau	Date/Time 9-5-96 12:55

New York State Project: Yes ____ No ~

Requested Analyses

1	pH	6	TKN	11	Total Solids	16	Metals (Specify)	21	EPA 624	26	EPA 8270 B/N or Acid
2	Chloride	7	Total P	12	TSS	17	Coliform (Specify)	22	EPA 625 B/N or A	27	EPA 8010/8020
3	Ammonia N	8	Total Diss. P	13	TDS	18	COD	23	EPA 418.1	28	EPA 8080 Pest/PCB
4	Nitrite N	9	BOD_5	14	Turbidity	19	BTEX	24	EPA 608 Pest/PCB		
5	Nitrate N	10	Alkalinity	15	Conductivity	20	EPA 601/602	25	EPA 8240		
29	TCLP (Specify: volatiles, semi-volatiles, metals, pesticides, herbicides)										
30	Other (Specify):										